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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,689	02/17/2004	Harold L. Castle	10541-1986	2030

29074 7590 04/21/2005
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EXAMINER

LEYKIN, RITA

ART UNIT PAPER NUMBER

2837

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EF

Office Action Summary	Application No. 10/780,689	Applicant(s) CASTLE ET AL.	
	Examiner Rita Leykin	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-23 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/12/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al. US # 6,373,162.

With respect to claims 1, 15 and 20, Liang et al. disclose a pm machine with flux control. Wherein Liang et al. show in Fig. 1-4 an electric machine assembly 10 that includes housing 12, a stator assembly members 14, 16 and a rotor 18 which is disposed between and in proximity to stator members coupled to shaft 20, and a stationary field coil 22 mounted within housing member 12, (see column 3, lines 10-22). Also, as it disclosed in column 3, lines 58-65, a control assembly 52 may include a processor for operational control of rotor 18. It is well known in the art that alteration of magnetic field can be achieved via control of switching devices operationally coupled to the motor windings.

The field modification coil is presented in form of pole pieces 80, 82 wherein each of them includes a plurality of peripherally disposed soft magnetic or

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ferromagnetic portions "consequent poles" 108-114 that are capable to be temporarily magnetized in the presence of a field current. By varying the direction and/or magnitude of the field current within coil 22 and/or winding 38 , controller 52 selectively causes sections 108-114 to selectively provide the necessary field "weakening" or "strengthening" flux needed or required to maintain a consistent output voltage/current, (see column 6, lines 1-67). It appears that sections 108-114 in combination with above machine structure perform function of the flux carrier and a return guide for magnetic field, as in claims 4, 9, 10 and similar. The above reads on applicant's field modification module proximate with the motor and configured to alter the magnetic field thereby controlling speed and torque of the rotor, as in claims 1, 2 and similar.

With respect to claim 3 and similar, the presence of air gap will provide for the flux carrier and air gap is external to the coil.

With respect to claim 6, 7 and similar, Fig. 1 shows cavity in the enclosure and coils that are located inside of the cavity. it is also internal to .

The control of switching devices via modulation of the applied signals is a part of known motor control. When the rotor 18 is rotating at a speed which generates a higher than is desired output torque or power, controller 52 selectively and controllably sources electrical power through coil 22 an inverted voltage, thereby causing sections 108-114 to generate a magnetic field/flux in the opposite direction as field 106, thereby reducing the overall torque and/or power provided by assembly 10.

It appears that broad language of the provided claims is very similar to the prior art structure.

Hence, it has been obvious to one of ordinary skills in the art, at the time invention was made to control flux/field of the motor control system via energizing of plurality of permanent magnet poles and plurality of "consequent poles" as in Liang et al. teaching and to apply this teaching in configuration that includes cavity and the coil located inside of the cavity.

The reason is to cause rotation of the armature with a speed required by the user and according to adequate control parameters.

Allowable Subject Matter

3. Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter. The prior art made of record in the attached form PTO-892 considered to be pertinent to the submitted application.

However, none of the prior art teaches or suggests the combination of:

- Flux carrier that has a thin portion that allows a disruption in the magnetic field, and the field modification module includes a supplementary flux carrier that is positioned proximate the thin portion of the flux carrier and a motion device coupled to the supplementary flux carrier wherein the

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supplementary flux carrier is movable in relation to the flux carrier thereby adjusting the disruption in the magnetic field.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Leykin whose telephone number is (571)272-2066. The examiner can normally be reached on Monday-Friday 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571)272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R.L.

Rita Leykin
Primary Examiner
Art Unit 2837

